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CLAIMS:

1.   A luminance and color separation filter unit (300) for extracting a luminance signal (Y) and two color signals (U, V) from a composite color television signal (CVBS), comprising a chrominance (C) signal being modulated on a sub-carrier which is located in the high-frequency part of the frequency spectrum of the luminance signal (Y), the filter unit
5   (300) comprising:

        - acquisition means (302) to acquire a first sample of the composite color television signal, corresponding to a first pixel and other samples of the composite color television signal, corresponding to other pixels in a neighborhood of the first pixel;

        - correlation estimation means (304) to estimate a first set of correlation values
10 representing correlations between the first sample and the respective other samples, on basis of an initial separation of an approximation of the luminance signal from the composite color television signal;

        - penalty estimation means (306) to estimate a second set of penalty values representing relations between the first sample and the respective other samples;

15   - computing means (308) to compute a third set of combined values by means of combining respective elements of the first set of correlation values and the second set of penalty values;

        - selection means (310) to select a particular sample of the composite color television signal on basis of the corresponding combined value compared to further combined
20 values of the third set of combined values; and

        - decoding means (312) to determine at least one final value of a set of values comprising a final luminance value and two color values corresponding to the first pixel, on basis of the first sample and the particular sample.

25 2.   A luminance and color separation filter unit (300) as claimed in claim 1, whereby the correlation estimation means (304) is arranged to compute a first one of the correlation values by means of computing a difference between a first luminance value and a second luminance value, the first luminance value belonging to the first pixel and being represented by a first sample of the approximation of the luminance signal, the second

luminance value belonging to a second one of the pixels in the neighborhood of the first pixel and being represented by a second sample of the approximation of the luminance signal.

3.   A luminance and color separation filter unit (300) as claimed in claim 1, whereby the penalty estimation means (306) is arranged to compute a first one of the penalty values by means of computing a distance between the first pixel and a second one of the pixels in the neighborhood of the first pixel.

4.   A luminance and color separation filter unit (300) as claimed in claim 1, whereby the penalty estimation means (306) is arranged to compute a first one of the penalty values by means of:

      - computing a first difference between a first sub   -carrier phase of the first sample of the composite color television signal, corresponding to the first pixel and a second sub   -carrier phase of a first one of the other samples corresponding to other pixels in the neighborhood of the first pixel; and

      - computing a second difference between the first difference and a predetermined value.

5.   A luminance and color separation filter unit (300) as claimed in claim 4, whereby the predetermined value corresponds to 180°.

6.   A luminance and color separation filter unit (300) as claimed in claim 4, whereby the predetermined value corresponds to 120° and the decoding means (312) are arranged to determine the at least one final value of the set of values comprising the final luminance value and the two color values corresponding to the first pixel, on basis of the first sample, the particular sample and a further one of the other samples corresponding to other pixels in a neighborhood of the first pixel.

7.   A luminance and color separation filter unit (300) as claimed in claim 1, whereby the other pixels in the neighborhood of the first pixel are located in a window which is centered around the first pixel and located in a first field to which the first pixel belongs.

8.   A luminance and color separation filter unit (300) as claimed in claim 1, whereby a first portion of the other pixels in the neighborhood of the first pixel are located in

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a first window which is centered around the first pixel and located in a first field to which the first pixel belongs and a second portion of the other pixels in the neighborhood of the first pixel are located in a second window which is located in a second field.

5   9.   A luminance and color separation filter unit (300) as claimed in claim 8, whereby the second window is centered around a central pixel, the first pixel and the central pixel having mutually equal coordinates.

10.   A luminance and color separation filter unit (300) as claimed in claim 8,
10   whereby the second window is centered around a central pixel, the difference between the coordinates of the first pixel and the coordinates of the central pixel determined by a motion vector, representing motion between parts of the first and second field.

11.   An image processing apparatus (700) comprising:
15   - receiving means (702) for receiving a composite color television signal, comprising a chrominance signal being modulated on a sub -carrier which is located in the high   -frequency part of the frequency spectrum of a luminance signal; and
               - a luminance and color separation filter unit (706) for extracting the luminance signal and two color signals from the composite color television signal, the filter
20   unit (706) comprising:
               * acquisition means (302) to acquire a first sample of the composite color television signal, corresponding to a first pixel and other samples of the composite color television signal, corresponding to other pixels in a neighborhood of the first pixel;
               * correlation estimation means (304) to estimate a first set of correlation
25   values representing correlations between the first sample and the respective other samples, on basis of an initial separation of an approximation of the luminance signal from the composite color television signal;
               * penalty estimation means (306) to estimate a second set of penalty values representing relations between the first sample and the respective other samples;
30   * computing means (308) to compute a third set of combined values by means of combining respective elements of the first set of correlation values and the second set of penalty values;

* selection means (310) to select a particular sample of the composite color television signal on basis of the corresponding combined value compared to further combined values of the third set of combined values; and

       * decoding means (312) to determine at least one final value of a set of values comprising a final luminance value and two color values corresponding to the first pixel on basis of the first sample and the particular sample.

12.   An image processing apparatus (800) as claimed in claim 11, further comprising a display device (804) for displaying images being represented by the luminance signal and the two color signals.

13.   A TV comprising the image processing apparatus (800) as claimed in claim 12

14.   A method of extracting a luminance signal and two color signals from a composite color television signal, comprising a chrominance signal being modulated on a sub -carrier which is located in the high -frequency part of the frequency spectrum of the luminance signal, the method comprising:

       - acquiring a first sample of the composite color television signal, corresponding to a first pixel and other samples of the composite color television signal, corresponding to other pixels in a neighborhood of the first pixel;

       - estimating a first set of correlation values representing correlations between the first sample and the respective other samples, on basis of an initial separation of an approximation of the luminance signal from the composite color television signal;

       - estimating a second set of penalty values representing relations between the first sample and the respective other samples;

       - computing a third set of combined values by means of combining respective elements of the first set of correlation values and the second set of penalty values;

       - selecting a particular sample of the composite color television signal on basis of the corresponding combined value compared to further combined values of the third set of combined values; and

       - determining at least one final value of a set of values comprising a final luminance value and two color values corresponding to the first pixel on basis of the first sample and the particular sample.

15.   A computer program product to be loaded by a computer arrangement, comprising instructions to extract a luminance signal and two color signals from a composite color television signal, comprising a chrominance signal being modulated on a sub-carrier which is located in the high-frequency part of the frequency spectrum of the luminance

5   signal, the computer arrangement comprising processing means and a memory, the computer program product, after being loaded, providing said processing means with the capability to carry out:

- acquiring a first sample of the composite color television signal, corresponding to a first pixel and other samples of the composite color television signal,

10 corresponding to other pixels in a neighborhood of the first pixel;

- estimating a first set of correlation values representing correlations between the first sample and the respective other samples, on basis of an initial separation of an approximation of the luminance signal from the composite color television signal;

- estimating a second set of penalty values representing relations between the

15 first sample and the respective other samples;

- computing a third set of combined values by means of combining respective elements of the first set of correlation values and the second set of penalty values;

- selecting a particular sample of the composite color television signal on basis of the corresponding combined value compared to further combined values of the third set of

20 combined values; and

- determining at least one final value of a set of values comprising a final luminance value and two color values corresponding to the first pixel on basis of the first sample and the particular sample.